

Title (en)
Controller for a light curing apparatus

Title (de)
Regelkreis für ein Lichthärtgerät

Title (fr)
Contrôleur de lampe de polymérisation

Publication
EP 0942633 A1 19990915 (DE)

Application
EP 99102631 A 19990211

Priority
DE 19810573 A 19980311

Abstract (en)

The control circuit for a light setting apparatus, to harden dental material by light polymerization using a hand-held light gun, controls the power supply with a preset nominal power rating. The cable (16) between the apparatus and the light gun is in the control circuit. The control suppresses the switching on of the apparatus (10), or generates a signal, when the nominal power has a voltage which breaches the control voltage bias (39) following a voltage drop at a field effect transistor (FET) (46) or a corresponding current. A voltage monitor (72) registers the terminal voltage of the lamp (24), and a current monitor (70) registers the lamp current. Their signals are passed to an evaluation circuit (60) by a control line (44) through the cable (16). The feeder station (12) has a control circuit (38) and especially a switch control, and controls the FET (46), linked by a control line (44) through the cable (16). The hand unit (14) has a calibrator (80) to calibrate the monitors (70, 72) and the evaluation circuit (60), especially as a digital/analog converter in the evaluation circuit (60). The evaluation circuit (60) is connected to a switch button (22) at the hand unit (14), especially as a key function to give an immediate start signal when the button (22) is pressed. The control circuit (38) at the feeder station (12) has a control characteristic curve which begins with a soft start value of the output voltage (54) for the lamp (24) through the cable (16), followed by a linear increase through a rising control voltage. The rate of increase from the control circuit (38) to the FET (46) is ≥ 1 . The power control at the hand unit (14) takes into account the length of the cable (16) between the hand unit (14) and feeder station (12). The FET (46) delivers a controlled output voltage (54) to the cable (16). An auxiliary feed voltage (42) is fed through the cable (16) to the hand unit (14) for a blower (26), and also for other auxiliary units (66), independently of the controlled output voltage (54). The evaluation circuit (60) has an output connection for the blower (26), where the duration of the switched-on time for the blower (26) to cool the lamp (24) is determined from the total illumination time of the lamp, or its total uninterrupted lighting time. The calibrator (80) registers all the components of the hand unit (14) which are subject to tolerances, on the comparisons, and the calibration data are stored especially in an EEPROM. Each hand unit (14) is calibrated independently of the cable (16) length between it and the feeder station (12). The evaluation circuit (60) has a signaling unit (62) to indicate a lamp change, when the internal resistance of the lamp (24) is outside a given threshold value. The threshold value matches a value of the controlled output voltage (54). The value of the control voltage bias (39) is also the minimum voltage drop of the FET (46).

Abstract (de)

Die Erfindung betrifft ein Lichthärtgerät (10) mit einem Handgerät (14) mit einer Lichtquelle. Das Handgerät (14) ist über ein Kabel (16) mit einer Speisestation (12) verbunden, wobei das Kabel (16) insbesondere steckbar an das Handgerät (14) und die Speisestation (12) angeschlossen ist. Die Erfindung weist eine Regelung für die Lichtquelle (24) für die Bereitstellung einer gleichmäßigen Lichtabgabe, insbesondere für die Lichtpolymerisation von Dentalmassen, auf. Die Regelung ist als Leistungsregelung ausgebildet und das Kabel (16) ist im Regelkreis der Regelung angeordnet. Diese Regelung unterdrückt ein Einschalten des Lichthärtgeräts (10), wenn eine Sollleistung eine Spannung erfordert, die eine Regelvorspannung (39) abzüglich eines Spannungsabfalls eines Regelelements (FET 46) übersteigt. Alternativ wird dies signalisiert. <IMAGE>

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- [A] US 5471129 A 19951128 - MANN ROLAND [LI]
- [A] EP 0166364 A2 19860102 - ESPE PHARM PRAEP [DE]
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